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ABSTRACT

Tips on constructing survey instruments and examples of alternative formats for questionnaire items are provided in this paper. The 18 tips cover such areas as instructions for respondents, wording of questionnaire items, grouping of items, handling of difficult or sensitive questions, fixed-response items, open-ended questions, and questionnaire layout. Examples of nine different formats for questionnaire items are presented. For each, the level of measurement attained (nominal, ordinal, or interval/ratio) and suggestions for appropriate use are given. (EB)

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CONSTRUCTION OF SURVEY INSTRUMENTS

MAY 1978

Thomas Boynton

Research staff at community colleges perform many duties in their service to the institution and often one of these is conducting workshops on the research process. This author had the pleasure of conducting three such workshops in the past year. These were: Survey Instrument Construction, Data Collection, and Data Analysis workshops. All three were enthusiastically received by the faculty and staff at KVCC[1] and this was especially true for the Survey Instrument Construction Workshop. It became evident that there were many persons in the college who wished to conduct some sort of survey, perhaps for a dissertation, thesis, or just their "pet project", but had no clear idea as to how to go about creating an instrument to accomplish this end. They found the material from the Survey Instrument Construction Workshop very helpful to them in this respect.

This author suspects that there are probably many persons working at community colleges who would like to have a brief but readable article on the techniques of survey instrument construction. In the following sections some comments are made on research design followed by 18 points or "tips" on survey instrument construction. The last section contains

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[1] These workshops were conducted at Kalamazoo Valley Community College.

nine different formats the items for the questionnaire might assume - depending upon the needs of the researcher.

THE DESIGN

A great deal of work must go into the construction of a good survey instrument. Perhaps the single biggest mistake persons make in this task is rushing to a typewriter to list a series of questions they feel "will get at" the kind of information they are seeking. Using this method, one will end up with an unbalanced, poorly-worked instrument that will probably result in more confusion than help.

The nature of the instrument will depend upon many things including the particular design of the study and also the anticipated analysis techniques. A factor which is really a part of the research design, but which is also very pertinent to instrument construction is the focus of the study. No study can answer all the questions related to a particular issue. It is very necessary to focus in on the important aspects of the issue and leave the peripheries to the suggestion-for-further-research section. Of course, in order to focus, one must clearly delineate the problem under investigation. Actually, clear delineation of the problem is the essential ingredient in the focusing process. If one very carefully lays out the design - focusing on the central aspects of the issue - then the construction of the instrument as well as the later data analysis will almost fall into place.

It should be obvious then, that the designing of a project has a logical and temporal priority over the construction of the instruments to be used to collect the data. Keeping this all important priority in mind, the reader may enter into the following section in which 18 suggestions are presented for the construction of schedules and questionnaires.

SUGGESTIONS FOR THE CONSTRUCTION OF SURVEY INSTRUMENTS

1. Instructions should be adequate but brief and easy to read. Use simple, clear language. Never assume that the respondent is sophisticated in the use of research instruments. The instructions should contain some statement of what the section is about and then carefully specify how the respondent is to fill in the required data. In some cases, such instructions can be given orally, if they are not too complicated, and of course, when a schedule is used, the interviewer fills out the form so that comments regarding response format are unnecessary.
2. Instructions should be placed where needed. Do not try to lump all instructions at the beginning of the instrument. Start out with a general orientation statement and then specify the instructions appropriate before each section having a different format.
3. Items should be relevant to the study. They should be derived from hypotheses or stem from the objectives of the study. Items should be carefully worded so that they indicate or measure what they are intended to measure - no more, no less! Pay close attention to the hypotheses or objectives of the study and keep the instrument as streamlined as possible maintaining the focus of the study.
4. Items should be brief and easy to read. Use simple, clear language. Be careful in the wording of the items avoiding difficult words and long complicated sentences. It is generally unwise to assume a high level of sophistication in the respondent unless, of course, the nature of the sample clearly indicates otherwise.
5. Items should contain one bit of information only. Watch out for terms: or, and, and but, and other divisive words. Very often what appears

to be one question is really two or more questions in an instrument. Words such as or, and, and but often serve as terms denoting a split in or an addition to a statement. Thus, "Do you like apples and oranges?" is really two questions: "Do you like apples?" and "Do you like oranges?"

6. Items covering the same topic should be grouped together. If items covering the same topic are distributed in the instrument in a random fashion, continuity is lost. Although there are sometimes specific reasons for separating the items in an area, it is best to keep them together as much as possible so that the questionnaire "hangs together" for the respondent and also the interviewer.

7. Interesting items should come first in the instrument. In order to get the respondent involved with the problem, it is best to start out with the most interesting questions. For this reason, demographic and other "dry" material should come later in the questionnaire. Try to "catch the eye" of the respondent and get his or her interest.

8. Difficult and sensitive questions should come at the end of the instrument. Unless the design or logical order of questions strongly demands otherwise, all difficult and sensitive questions should be toward the end of the instrument. This point is closely related to the one immediately above since the reason for holding off on such questions is that you need to establish rapport with the respondent before going into the "stickier" aspects of the study.

9. Items should be stated in neutral terms free from bias as much as possible. When heavily biased terms are included in an item, they will probably destroy the validity of that item. Avoid socially sensitive words, ethnic slurs, slang, and in-shop terms. People may not understand such terms or react emotionally to those they do

understand. Be careful when using limiting terms such as only, just, or merely, since these words can easily introduce as unwanted slant. Keep it neutral (unless of course, you are testing reactions to biased terms.)

10. Avoid encompassing terms such as all, always, everyone, every time, etc. The usage of encompassing words is really a special kind of term-bias. The main difficulty with the use of such terms is that you will get virtually no variations in the responses and the item will be a wasted effort. No one is always punctual nor does everyone like apple pie. Avoid statements that are likely to be endorsed by almost everybody or by almost no one. Allow your questions to pick up some variation by avoiding encompassing terms. Items are really indicators of variables, and of course, variables must vary!
11. Choices on fixed-response items should be mutually exclusive. The choices for an item should be logically distinct from one another so that the respondent has no difficulty selecting the one he wants. Anything short of this produces confusion and distortion.
12. Choices on fixed-response items should be exhaustive. Fixed-response items are esentially pre-categorized items. If the choices are not at least reasonably exhaustive, sooner or later a respondent will come up with an answer that you have not listed. To have a section for comments can cover for this contingency, but if the response choices are very limited, you will end up with many comments and your item will have degenerated into an open-ended question. If you do a poor job of categorization in the beginning, you will be forced to re-categorize in the end.
13. Open-ended questions should occur in a logical position. It is a good policy to put open-ended items together, especially if they cover

the same topic. Such questions may not be independent of fixed-response items, however. That is, sometimes such open-ended items are really extensions of fixed-response ones. For example, "Do you need counseling ____ yes ____ no" is a fixed-response item which might be followed by an open-ended question; "Why do you feel you need counseling?" In such cases, the open-ended question should come immediately after its parent-item.

14. <u>There should be no abrupt or unnecessary changes in the format.</u> Try to keep the format as constant as possible. If you use, say the Likert technique, try to use it throughout the instrument as much as possible. If you must change to another type of item, such as an open-ended question or perhaps a semantic differential type, make the change as easy a transition as possible with adequate instructions. Keep all items with the same response format together as much as the design will allow.

15. <u>Pre-coding symbols should not clutter the response area so as to disturb the respondent.</u> Many times the researcher will want to pre-code the items in his instrument for computer use. One should take care to make sure that these codings do not confuse the respondent. Keep them brief and well off to the right or left of the response areas.

16. <u>Keep the instrument as brief as possible.</u> If the study is properly focused, this result will usually follow automatically. The instruments (or parts thereof, if a multi-sample technique is used) should be kept brief since long ones tend to induce fatigue and disinterest on the part of the respondent.

17. <u>The instrument should be aesthetically appealling using good paper and clear print.</u> This suggestion is perhaps obvious but very often overlooked

by the novice. A good-looking questionnaire will enhance the credibility of the research and undoubtedly help to enlist greater cooperation from the respondents for this reason.

18. The response area should be sufficiently large with plenty of "white space." A crowded questionnaire is not only unappealing to the eye but it also makes it difficult for the respondent to answer the questions or to see at a glance whether or not he has answered all the questions. Keep plenty of white space between items and between the item and the response area.

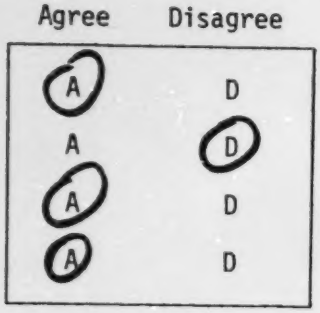
FORMATS FOR QUESTIONNAIRE ITEMS

There are many formats an item can assume in a questionnaire. The nine formats presented below are the most commonly used and understood. Comments are made about each format including the level of measurement it reaches.

FORMAT I

Response Format I is easy to understand. The respondent is asked to agree or disagree with a series of statements. This format is very easy for the respondent to follow and readily lends itself to speedy tabulation by the researcher. Data from this format are at the nominal level of measurement.

FORMAT I



1. I hesitate to ask help from others.
2. I like to do things with my family.
3. I enjoy working with students who get good marks.
4. I seldom argue with my parents.

FORMAT II

Format II is an extension of Format I in which the respondent is asked to agree or disagree with statements, and also the degree to which he or she agrees or disagrees. The overall format assumes a grid pattern which is easy for the respondent to check and for the researcher to tally. The data from this format are at the ordinal level of measurement.

FORMAT II

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I hesitate to ask help from others.		X			
2. I like to do things with my family.				X	
3. I enjoy working with students who get good marks.	X				
4. I seldom argue with my parents.		X			

FORMAT III

This format is basically the same as Format II except that instead of asking the respondent the degree to which he or she agrees with the statements, the frequency of the act specified in the statement is requested. The format is a simple Likert type and not so easily checked or tallied as Format II. Data from this format are at the ordinal level.

FORMAT III

1. I hesitate to ask help from others.

   Always (Very Often) Often Not Very Often Never

2. I like to do things with my family.

   Always Very Often Often (Not Very Often) Never

3. I enjoy working with students who get good marks.

   Always (Very Often) Often Not Very Often Never

4. I argue with my parents.

   Always (Very Often) Often Not Very Often Never

FORMAT IV

Format IV is easy to check for the respondent and the data are easily tabulated. It contains a single question and assumes the ordinal level of measurement.

FORMAT IV

How have your colleagues generally responded to your presentation of the Kovak Model 13?

_____Very enthusiastically, and want to use it.
_____It has some possibilities, with some changes.
✔ It may be useful, but there is no desire to try it.
_____It is not a very good model.

FORMAT V

Format V is often used by researchers especially in public opinion poles, advertising campaigns and so forth. Here the respondent is asked to check all response categories that apply. Data from this format reach only the nominal level of measurement.

FORMAT V

What do you read in the daily newspapers? (check all that apply.)

✔ News
____ Editorials
____ Opinion Columnists
____ Letters to Editors
✔ Ads
____ Human Interest Features
____ Educational News
____ Others (Please specify) _____

_____

FORMAT VI

Format VI is similar to Format V except that the respondent is asked to check one category only. Data from this format are at the nominal level of measurement.

FORMAT VI

Where do you think KJCC should look for its main source of income? (Check one only.)

____ Local Millage (Property Tax)
____ State Money
✔ Federal Money
____ Student Tuition
____ Gifts
____ Others (Please specify) _____

_____

FORMAT VII

The item in Format VII is actually a two-part question. The first part is a fixed-response item designed to obtain the respondent's opinion on an issue. The second part is an open-ended type question in which the respondent is asked to express in his own words the reason he holds the opinion. Data from both parts of the question reach only the nominal level of measurement. Data from the fixed-response portion can be tallied while the comments from the open-ended portion might better be presented in an array. These comments can also be summarized by grouping them under appropriate labels and presenting frequencies for the labels in table form.

FORMAT VII

1. (a) Do you think that establishing relations with the Peoples' Republic of China is wise?

✓ Yes ____ No ____ Don't Know

(b) Why do you believe this? We need the trade.

FORMAT VIII

Format VIII is often used for continuous data such as age, income or educational achievement. Data from this format reach the interval/ratio level measurement. Note, however, that the categories must be exhaustive before interval/ratio statistics such as means and standard deviations can be computed. In the example, if the respondent works more than 60 hours per week, the exact number of hours would have to be known before these kinds of statistics could legitimately be used.

FORMAT VIII

Please indicate how many hours a week you work.

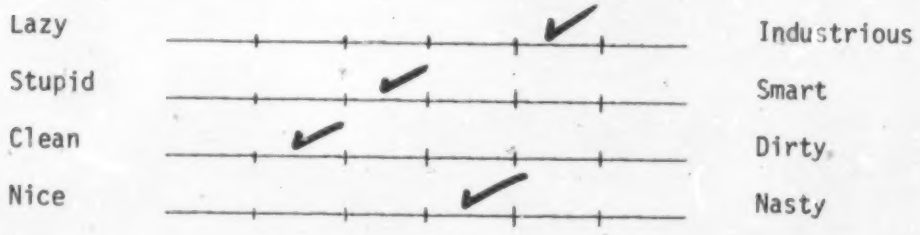
____0 to 10	✓ 31 to 40
____11 to 20	____41 to 50
____21 to 30	____51 to 60

FORMAT IX

Format IX is called the "Semantic Differential". It can be used to determine persons' attitudes on a wide varjety of subjects ranging from vegetables to ethnic groups. The data from this format reach the ordinal level of measurement.

FORMAT IX

I regard students as generally:



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It is hoped that this brief presentation of suggestions for the construction of survey instruments will prove to be as useful to the reader as it was to the faculty and staff at this college. It will then have served its purpose.

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